

The flare event files consist of two types of data. The first line is the flare group report beginning with the number "30" in the first two columns. The following lines with the number "31" in the first two columns list the individual station reports of flares that were used to compute the group line. Following is the format of the Flare Group Line, then the individual station report's format.

# F L A R E   G R O U P   L I N E   F O R M A T

C.....	Column	Fmt	Description
C.....			-----
C.....	1- 2	I2	Data code; always 30 for groupline reports.
C.....	3- 4	I2	Number of flares in this group.
C.....	5	A1	Blank.
C.....	6- 7	I2	Earliest year reported in the group.
C.....	8- 9	I2	Earliest month reported in the group.
C.....	10-11	I2	Earliest day reported in the group.
C.....	12-13	A2	Blank.
C.....	14-17	I4	Earliest start time reported in the group without a qualifier. If all start times have a qualifier, the earliest start time is used.
C.....	18	A1	Qualifier. When there are two or more flares in the group, the qualifier indicates the spread in those start times in minutes. If the spread is greater than 9 minutes, an asterisk (*) is placed in this field. When the group contains only qualified start times, the group line qualifier is the same as the earliest start time's qualifier. (D=after,E=before, U=uncertain)
C.....	19-22	I4	Average of all end times without a qualifier. If all end times have a qualifier, the latest end time is used.
C.....	23	A1	Qualifier. This average end time bears no qualifier unless the group contains only end times with qualifiers. When the group contains only qualified end times, the group line qualifier is the same as the latest end time's qualifier (D=after,E=before,U=uncertain).
C.....	24-27	I4	Earliest time of maximum brightness reported in the group without a qualifier. If all max times have a qualifier, the earliest max time is used.
C.....	28	A1	Qualifier. When there are two or more flares in the group, this qualifier indicates the spread in those max times in minutes. If the spread is greater than 9 minutes, an asterisk (*) is placed in this field. When the group contains only qualified max times, the group line qualifier is the same as the earliest max time qualifier. (D=after,E=before, U=uncertain)
C.....	29	A1	N or S for north or south latitude.
C.....	30-31	I2	Average latitude.
C.....	32	A1	E or W for east or west central meridian distance.
C.....	33-34	I2	Average central meridian distance.
C.....	35	A1	Average importance based on the following formula: Each importance reported in a group is given the numeric value S = 20, 1 = 30, 2 = 50, 3 = 70. The average is then reconverted to standard notation: S < 25 1 > = 25 and < 40 2 > = 40 and < 60 3 > = 60
C.....	36	A1	Average brightness based on the following formula: Each brightness reported in a group is given the numeric value F = 20, N = 50, B = 80. The average is then reconverted to standard notation: F < 35 N > = 35 and < 65 B > = 65
C.....	37	A1	Completeness C,P,V,OR S appears only when one flare report comprises the group.
C.....	38-41	F4.0	Time of flare area measurement appears only when one flare report comprises the group.
C.....	42-46	F5.0	Average apparent area in millionths of solar disk.

C.....	47-50	F4.1	Average corrected area in square degrees.
C.....	51	A1	Blank.
C.....	52-56	F5.2	Line Width. Width in Angstroms of H-alpha line is
C.....			given when only one flare report is in the group.
C.....	57-59	A3	Intensity. Brightness of H-alpha emission line
C.....			expressed as percentage above continuum is given
C.....			when only one flare report is in the group.
C.....	60	A1	X-ray class taken from first flare in group to contain
C.....			this information.
C.....	61-63	F3.1	X-ray intensity taken from first flare in group to
C.....			contain this information.
C.....	64-67	I4	Calcium plage region in which flare occurred
C.....			taken from first flare report in this
C.....			group to contain a plage region number.
C.....	68-71	A4	Station name abbreviation is given when only one
C.....			flare report is in the group.
C.....	72	I1	Seeing, stability of atmosphere during observation
C.....			is given when only one flare report is in the group.
C.....	73-80	A8	Remarks contain the alphabetically sorted union of all
C.....			remarks from the individual flare reports.
C.....			Duplicate remarks are eliminated.
C.....	81-85	I5	NOAA sunspot region number taken from the
C.....			first flare report in this group to contain one.
C.....	86	A1	Blank. May be used to add "A", "B" etc. to an improperly
C.....			assigned region number.
C.....	87-88	I2	Central meridian passage year.
C.....	89-90	I2	Central meridian passage month.
C.....	91-94	F4.1	Central meridian passage day.
C.....	95	A1	Blank.
C.....	96-100	I5	Grouping number assigned by WDC-A Boulder and reset each month.
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#### H-ALPHA SOLAR FLARE EVENT FORMAT Jan 1975 - Present

Reports of the same flare by different observatories have been identified and labeled with a GROUPING NUMBER in columns 96-100. The GROUP NUMBER counts the number of distinct flares for each month.

Files for 1955-74 need extensive editing to match the form and content of the 1975-to-present records described below.

Column	Fmt	Description
1- 2	I2	DATA CODE; always 31
3- 5	I3	STATION CODE; numeric; used within center
6- 7	I2	YEAR
8- 9	I2	MONTH
10-11	I2	DAY
12-13	A2	Asterisks mark record with unconfirmed change.
14-17	I4	START TIME
18	A1	QUALIFIER: D=after,E=before,U=uncertain
19-22	I4	END TIME
23	A1	QUALIFIER: D=after,E=before,U=uncertain
24-27	I4	MAX TIME; time of maximum brightness
28	A1	QUALIFIER: D=after,E=before,U=uncertain
29	A1	N or S for north or south latitude
30-31	I2	LATITUDE
32	A1	E or W for east or west central meridian distance
33-34	I2	CENTRAL MERIDIAN DISTANCE
35	A1	IMPORTANCE based on flare area = S,1,2 or 3
36	A1	BRIGHTNESS: F=faint, N=normal, B=bright
37	A1	COMPLETENESS = C,P,V or S; indicates the kind of
		observation and the completeness of it
38-41	F4.0	TIME FLARE AREA was measured
42-46	F5.0	AREA; apparent area in millionths of solar disk
47-50	F4.1	AREA; corrected area in square degrees; implied
		decimal point between columns 49 and 50
51	A1	Blank
52-56	F5.2	LINE WIDTH; width in Angstroms of H-alpha line
57-59	A3	INTENSITY; brightness of H-alpha emission line

expressed as percentage above continuum

60	A1	X-RAY CLASS: C,M,X code the maximum power of 10 the 1-8 Angstrom flux attains
61-63	F3.1	X-RAY INTENSITY: a number from 1.0 to 9.9 that multiplies the X-ray class
64-67	I4	CALCIUM PLAGE REGION in which flare occurred
68-71	A4	STATION name abbreviation
72	I1	SEEING: atmospheric stability during observations
73-80	A8	REMARKS: USAF flare reports contain letter-coded remarks in columns 73-75, status codes in 76, and NOAA/USAF region numbers in 77-80.
81-85	I5	NOAA/USAF SUNSPOT REGION NUMBER
86	A1	Blank; may be used to add a letter to a region
87-88	I2	CENTRAL MERIDIAN PASSAGE YEAR
89-90	I2	CENTRAL MERIDIAN PASSAGE MONTH
91-94	F4.1	CENTRAL MERIDIAN PASSAGE DAY
95	A1	Blank
96-100	I5	GROUPING NUMBER assigned by WDC-A Boulder

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